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Neutrino oscillation results of the OPERA experiment in the CNGS beam

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The OPERA experiment was designed to observe the appearance of tau neutrino in the muon neutrino CNGS beam. This goal was successfully reached by observing a high purity sample of ν_τ charged current (CC) interaction candidate events. Additionally, it was possible to isolate samples of ν_e and ν_μ CC candidates, as well as neutral current candidate events. These four samples were used to put additional constraints on parameters of both standard neutrino mixing model and the $3 + 1$ sterile model. This talk will review the methodology of measuring neutrino interactions using the OPERA apparatus and give an overview of all results on neutrino oscillations produced by the experiment. In particular, a joint analysis of ν_τ and ν_e samples will be shown which excludes a significant fraction of the sterile neutrino phase space allowed by MiniBooNE appearance analysis.

Working Group

WG1 : Neutrino Oscillation Physics

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